

U.S. Patent Application Serial No. 09/725,314

**REMARKS**

Claims 1, 2, 4 and 5 have been amended in order to more particularly point out, and distinctly claim the subject matter to which the Applicants regard as their invention. It is believed that this Response is fully responsive to the Office Action dated **September 3, 2002**.

Claims 1 - 6 are presently being examined.

The applicants thank the Examiner for indicating that the corrected drawings filed in the response to the previous Office Action are approved.

Claims 2 - 6 are rejected under 35 USC §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. The applicants respectfully request reconsideration of this rejection.

As indicated above, claims 2, 4 and 5 have been amended in order to more particularly point out, and distinctly claim the subject matter to which the Applicants regard as their invention, and in order to correct certain informalities therein, including those which have been pointed out by the Examiner.

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Accordingly, the withdrawal of the outstanding indefiniteness rejection under 35 USC §112, second paragraph, is in order, and is therefore respectfully solicited.

As to the merits of this case, claims 1 and 2 are rejected under 35 USC §102(b) as being anticipated by Maurer et al. (U.S. Patent No. 4,360,982). The applicants respectfully request reconsideration of this rejection.

The Examiner alleges that Maurer discloses a bucket tooth (60) attached to a bucket lip (36) via a fastening bolt (65), and that the bucket tooth has a concave aperture (80) for receiving the fastening bolt, and the bucket tooth is made of a boron steel. The Examiner also alleges that the combination of the concave aperture and the steel construction absorbs axial force fluctuations, due to the inherent properties of steel, and that it is notoriously well known that steel, and other metals, deform first elastically and then plastically in response to a force, and when the bolt acts upon the bucket tooth, the bucket tooth, particularly at the concave aperture, also deforms elastically. The Examiner alleges that since this elastic deformation absorbs the axial force and deformation in the elastic region, it also inherently means that the bucket tooth generates a resilient return force.

The elastic deformation occurring in the tooth of Maurer at the portion of the tooth compressed between the head of the bolt and the lip of the bucket is extremely small in relation to the elastic deformation which takes place in the present tooth having the force fluctuation absorbing means of the present invention. Therefore, the effectiveness, over a large range of

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axial force fluctuations, is greater in the tooth of the present invention.

In view of the Examiner's position and the above discussion, the applicants have amended claim 1 to recite that the claimed axial force fluctuation absorbing means is in addition to inherent elastic properties found in the material from which the bucket tooth is fabricated.

Accordingly, the claimed invention, as now set forth in amended claim 1, is not anticipated by the cited prior art. Thus, the withdrawal of the outstanding anticipation under 35 USC §102(b) based on Maurer et al. is in order, and is therefore respectfully solicited.

As to the outstanding obviousness rejections, first, claims 3 is rejected under 35 USC §103(a) as being unpatentable over Maurer et al. (U.S. Patent No. 4,360,982).

Maurer et al. is discussed above. The Examiner alleges that it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a warp of between 2 mm/m to 15 mm/m, since the warp is dependent upon the force applied.

It appears as though the Examiner is mischaracterizing claim 3 because the warp is not dependent upon the force applied, but is dependent upon the characteristics of the axial force fluctuation absorbing means.

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Secondly, claims 4-6 are rejected under 35 USC §103(a) as being unpatentable over Maurer et al. (U. S. Patent No. 4,360,982) in view of Rose et al. (U.S. Patent No. 4,958,970).

Maurer et al. is discussed above. The Examiner alleges that Rose et al. teaches that it was known in the art at the time the invention was made to spot face an element on the side facing the surface to which it is to be bolted, as shown in Fig. 8 of Rose et al. and that it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the bucket tooth of Maurer et al. with the spot facing of the Rose et al. patent, in order to provide an improved connection and force absorption means.

Regarding claim 6, the Examiner alleges that the range of ratio of depth of the spot facing to the diameter would have been an obvious matter of design choice since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

The washer system of Rose et al. provides improvements over known washers, such as conventional spring-lock washers and the like. Rose et al. does not describe or suggest having a component, which is typically assembled with use of a nut, bolt, and lock washer, machined to have a configuration which provides the axial force fluctuation absorbing properties found in a lock washer, or the like, within the component itself.

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In view of the above, the applicants' claimed invention would not have been obvious to a person of ordinary skill in the art under 35 USC §103(a) based on Maurer et al. and Rose et al., singly or in combination.

Accordingly, the withdrawal of the outstanding obviousness rejection under 35 USC §103(a) based on Maurer et al. (U. S. Patent No. 4,360,982) in view of Rose et al. (U.S. Patent No. 4,958,970) is in order, and is therefore respectfully solicited.

In view of the aforementioned amendments and accompanying remarks, claims, as amended, are in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

Attached hereto is a marked-up version of the changes made to the claims## by the current amendment. The attached page is captioned "**Version with markings to show changes made.**"

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In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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MRQ/lrj/ipc

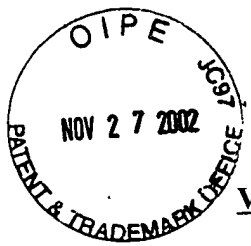
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PATENT TRADEMARK OFFICE

Enclosures: Version with markings to show changes made



VERSION WITH MARKINGS TO SHOW CHANGES MADE 09/725,314

IN THE CLAIMS:

Amend claims 1, 2, 4 and 5 as follows:

1. (Twice Amended) In an assembly having a bucket tooth attached to a bucket lip via a fastening bolt, said bucket tooth comprising axial force fluctuation absorbing means for absorbing fluctuations in axial force of said fastening bolt after attaching said bucket tooth to said bucket lip, said axial force fluctuation absorbing means being in addition to inherent elastic properties found in the material from which said bucket tooth is fabricated.

2. (Amended) The bucket tooth according to claim 1, wherein said axial force fluctuation absorbing means [allows the bucket tooth to generate] provides a resilient return force during said fluctuations in axial force by causing a warp to occur by resilient deformation of said tooth so that one face side, bolted in a state where the one face side is positioned on the bucket lip side, becomes a concave face [and performing bolting in a state where the one face side is positioned on the bucket lip side] during action of said axial force fluctuation absorbing means.

4. (Amended) The bucket tooth according to claim 1, wherein said axial force fluctuation absorbing means [allows the bucket tooth to generate]provides a resilient return force by spot facing [the circumference]a circumferential portion of a bolt hole in which said fastening bolt is inserted on the side facing said bucket lip[, of a bolt hole in which the fastening bolt is inserted].

5. (Amended) The bucket tooth according to claim 1, wherein said axial force fluctuation absorbing means [allows said bucket tooth to generate]provides a resilient return force during said fluctuations in axial force by causing a warp to occur by resilient deformation of said tooth so that one face side, bolted in a state where the one face side is positioned on the bucket lip side, becomes a concave face, and by spot-facing [the circumference on the side facing said bucket lip,] of a circumferential portion of a bolt hole in which the fastening bolt is inserted[,and performing bolting in a state where said one face side is positioned on a bucket lip side].